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DTE Energy

10 CFR 50.73

August 3, 2010
NRC-10-0062

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington D C 20555-0001

Reference: Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43

Subject: Licensee Event Report No. 2010-002, "Automatic Reactor Scram and Loss of Offsite Power Due to Severe Weather"

Pursuant to 10CFR50.73(a)(2)(iv)(A) and 10CFR50.73(a)(2)(iii), Detroit Edison is hereby submitting the enclosed Licensee Event Report (LER) 2010-02. This LER documents the automatic reactor shutdown on June 6, 2010, as a result of the loss of Division II of offsite power due to severe weather.

No commitments are made in this LER.

Should you have any questions or require additional information, please contact Mr. Rodney W. Johnson, Manager Nuclear Licensing at (734) 586-5076.

Sincerely,

Joseph H. Plona

cc: NRC Project Manager
NRC Resident Office
Reactor Projects Chief, Branch 4, Region III
Regional Administrator, Region III
Supervisor, Electric Operators,
Michigan Public Service Commission

IE22
NRR

NRC FORM 366 (9/2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: No. 3150-0104 Expires 8/31/2010

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Fermi 2	05000341	1 OF 4

4. TITLE Automatic Reactor Scram and Loss of Offsite Power Due to Severe Weather

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
6	6	2010	2010	- 002 -	00	08	03	2010	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

1

10. POWER LEVEL

100

11. THIS REPORT SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☒ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Joseph M. Pendergast	734-586-1682

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

At 0238 hours, on June 6, 2010, the Reactor Protection System initiated an automatic reactor scram from 100% power as a result of a Turbine Control Valve (TCV) fast closure. The TCV closure was caused by a turbine trip signal initiated by the main turbine-generator protective control system upon sensing the loss of Division II offsite power. The loss of Division II offsite power occurred as a result of the severe weather and tornado in the area.

All safety related systems operated as expected in response to this event. All control rods fully inserted into the reactor core. Reactor Pressure Vessel (RPV) water level decreased and the Reactor Core Isolation Cooling system was manually started to restore RPV level. Reactor Water Level 3 Primary containment isolations occurred as expected. Two Division II Emergency Diesel Generators started and energized their emergency loads as designed.

At 0417 hours, on June 6, an Alert was declared due to damage to the Auxiliary Building fifth floor siding during the severe weather. At 0220 hours, on June 7, 2010, the Alert was terminated. The Main Generator was synchronized to the grid at 1921 hours, on June 16, 2010, following repairs to offsite power feeds and station structures.

Initial Plant Conditions:

Mode 1
Reactor Power 100 percent

Description of the Event

At 0238 hours, on June 6, 2010, severe weather caused a loss of 345kV Division II offsite power.

A Turbine Control Valve (TCV) fast closure occurred and the Reactor Protection System (RPS) [JD] initiated a reactor scram as a result of the turbine trip [TA]. All control rods fully inserted into the reactor core. Reactor Pressure Vessel (RPV) Level 3 isolation groups for Residual Heat Removal (group 4), Drywell Sumps (group 13) and Transversing Incore Probes (group 15) [JM] isolated as designed. RPV level reached 142 inches above Top of Active Fuel (TAF). Reactor Core Isolation Cooling (RCIC) [BN] was manually started to maintain RPV level. RPV Pressure was controlled on the Turbine Bypass Valves (BPV) and as expected no Safety Relief Valves (SRVs) operated since no significant increases in pressure occurred. Decay heat was removed using the main condenser. An Unusual Event due to Natural Destruction Phenomena Affecting the Protected Area was declared at 0253 hours.

Additionally, two of the three Division I 120 kV offsite supply lines were lost due to the storm. Division I buses were powered by the remaining offsite feed. The Division II Emergency Diesel Generators (EDGs) [DG] started automatically and fed the Division II buses.

The National Weather Service identified a Category EF1 tornado in the area of the Fermi 2 station when the Division II offsite power was lost.

At 0417 hours, an Alert was declared due to Natural Destruction Phenomena Affecting the Plant Vital Area. Physical damage to the Auxiliary Building [NF] was identified during station inspection following the high wind condition. The damaged structures included the Auxiliary Building, Turbine Building roof, South Turbine Building roll up door and the Cooling Towers. On June 7, 2010, at 0220, the Alert was terminated.

The Main Generator was synchronized to the grid at 1921 hours, on June 16, 2010, following repairs to offsite power feeds and station structures.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event or condition that resulted in a valid actuation of RPS and other plant Engineered Safety Features and 10 CFR 50.73(a)(2)(iii) Natural Phenomenon.

Significant Safety Consequences and Implications

All safety related equipment functioned as expected in response to the scram. All control rods were verified to have fully inserted following the scram. All reactor parameters were maintained well within analyzed limits. Turbine Bypass Valves opened to control reactor pressure. No significant increase in reactor pressure occurred as a result of the event; as such, no SRVs lifted.

Reactor vessel water level decreased as expected from the normal level of 196 inches to approximately 142 inches. As a result of the loss of Division II power, the feedwater system was not immediately available following the scram but could have been restored if needed. RCIC and Standby Feedwater were utilized to control water level in the RPV. No Emergency Core Cooling Systems (ECCS) were challenged. Reactor vessel Level 3 Containment Group isolations were received per design. EDGs 13 and 14 automatically started as designed and provided power to Division II safety related busses 65E and 65F.

An Unusual Event and Alert were declared in accordance with the Emergency Plan (Reference Emergency Notification 45979).

There was no change in radiological risk following the event. The Division I Standby Gas Treatment System (SGTS) was initiated to maintain Secondary Containment in accordance with operating procedures. The Division I SGTS Stationary Iodine Particulate and Noble Gas (SPING) radiation monitors, monitored the SGTS exhaust stack with no anomalies noted. There was no active release in progress from the Turbine Building HVAC, Radwaste HVAC, or Reactor Building HVAC exhaust stacks.

Cause of the Event

A category EF1 tornado caused a Reactor Scram, loss of Division II offsite power, and the release of a blow-out panel on the Auxiliary Building.

Corrective Actions

The damage to 120 kV Division I and 345 kV Division II offsite power was repaired and all offsite circuits were restored prior to Reactor restart. Repairs were also made to important station structures including the Auxiliary Building east wall, the Turbine Building roof and south roll up door and the Cooling Towers.

Materials from the openings in the Auxiliary Building wall and Turbine Building roof were surveyed to verify no radioactive material was present. Interior surfaces near the openings were also checked for contamination. Grab samples for airborne activity were also taken in the vicinity of each opening. All operating air monitoring filters were removed and analyzed for radionuclides. No radionuclide activity was detected.

Additional Information

A. Failed Components: None

B. Previous LERs on Similar Problems: There have been no previous events involving a tornado.